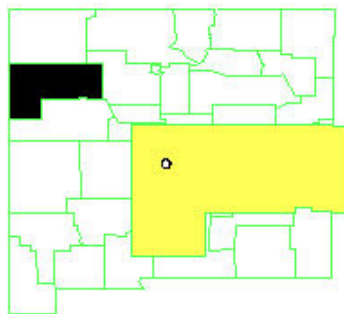


UNITED NUCLEAR CORPORATION (MCKINLEY COUNT NEW MEXICO

EPA ID# NMD030443303
Site ID: 0600819



EPA REGION 6 CONGRESSIONAL DISTRICT 03

Contact:
Mark Purcell 214.665.6707

Other Names:
UNC Mining and Milling
Church Rock Mill

Updated: September 2006

Current Status

Remedial activities are being conducted by the United Nuclear Corporation (UNC) in accordance with an EPA Unilateral Administrative Order under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to mitigate tailings seepage in three shallow ground-water zones at the UNC Church Rock Superfund site (Site). The remedy consists of extraction wells to pump contaminated ground water and evaporation ponds for water disposal.

The ground-water remedial systems for all three zones have been shut down because they reached their limit of effectiveness in achieving the cleanup levels established by EPA in its 1988 EPA Record of Decision (ROD). Operational results for the extraction systems for Zone 1 and Zone 3 of the Upper Gallup Sandstone Formation demonstrated significant declines in pumping rates over time due to insufficient natural recharge of the aquifers. The loss in saturation reached levels that did not support pumping and the systems were shut down. The Zone 3 system was also shut down because it was accelerating the movement of the contaminated water, rather than containing it. For the Southwest Alluvium, the extraction system provided partial hydraulic containment to tailing-seepage migration, but there was little progress in achieving Site cleanup standards over time. UNC has evaluated the technical impracticability (TI) of achieving cleanup standards for sulfate, total dissolved solids (TDS) and manganese and recommended that EPA invoke a TI waiver for these constituents. UNC also recommended the establishment of institutional controls to prevent the use of contaminated ground water in specific areas located off the UNC property on Navajo Tribal Trust and Indian Allotment lands.

In a 2003 Five-Year Review of the remedy, the EPA directed UNC to perform a Site-wide Supplemental Feasibility Study (SFS) in order for EPA to investigate and evaluate possible remedial alternatives and to support a possible ROD Amendment or Explanation of Significant Differences, as appropriate. As part of the Review, the EPA also recommended that the SFS examine the establishment of institutional controls to restrict the use of contaminated ground water. A draft SFS was submitted by UNC and commented on by EPA in 2005. The EPA is currently evaluating the feasibility of establishing institutional controls on Tribal Trust and Indian Allotment lands to restrict the use of contaminated ground water.

In 2004 and 2005, UNC tested hydraulic fracturing in Zone 3 in an attempt to enhance the recovery of contaminated ground water. The Zone 3 extraction well system was restarted and hydraulic fracturing was evaluated as part of a full-scale test. A UNC report on the hydraulic fracturing test results, dated June 2006, is being reviewed by EPA. In October 2005, UNC submitted a proposal to conduct a pilot study for *in-situ* alkalinity stabilization in Zone 3. The pilot study would evaluate the use of injection wells, in addition to the extraction wells, to further enhance the ongoing remediation of Zone 3. The pilot study would test the injection of better quality water from a deeper aquifer (Dakota Formation) into Zone 3, within the area of contamination. The proposed pilot study has been approved. Operational start-up is planned for mid-September 2006.

Benefits

The surface reclamation actions performed by UNC under the direction and oversight of the U.S. Nuclear Regulatory Commission (NRC) at the Site between 1988 and 1996 have stabilized the mill tailings and have protected the Rio Puerco from contamination spills like the one that occurred in 1979.

Portions of the Site are now used for animal grazing by local residents, and environmental and economic benefit to the Navajo Nation.

National Priorities Listing (NPL) History

NPL Proposed Date: 12/30/82

NPL Final Date: 9/08/83

Location: The Site is located 17 miles northeast of Gallup, New Mexico and on the southern border of the Navajo Indian Reservation.

Population: The surrounding area is sparsely populated, with the nearest residence located 1.5 miles north of the Site.

Setting: The Site includes a former uranium ore processing mill and tailings disposal area, which covers about 25 and 100 acres, respectively. The tailings disposal area is subdivided into three cells by dikes. The cells are identified as the South Cell, Central Cell, and North Cell. The tailings cells have been capped with an interim radon barrier cover as part of the reclamation activities directed by the NRC. Two evaporation ponds have been constructed on top of the cells as part of the EPA's ground-water remedy.

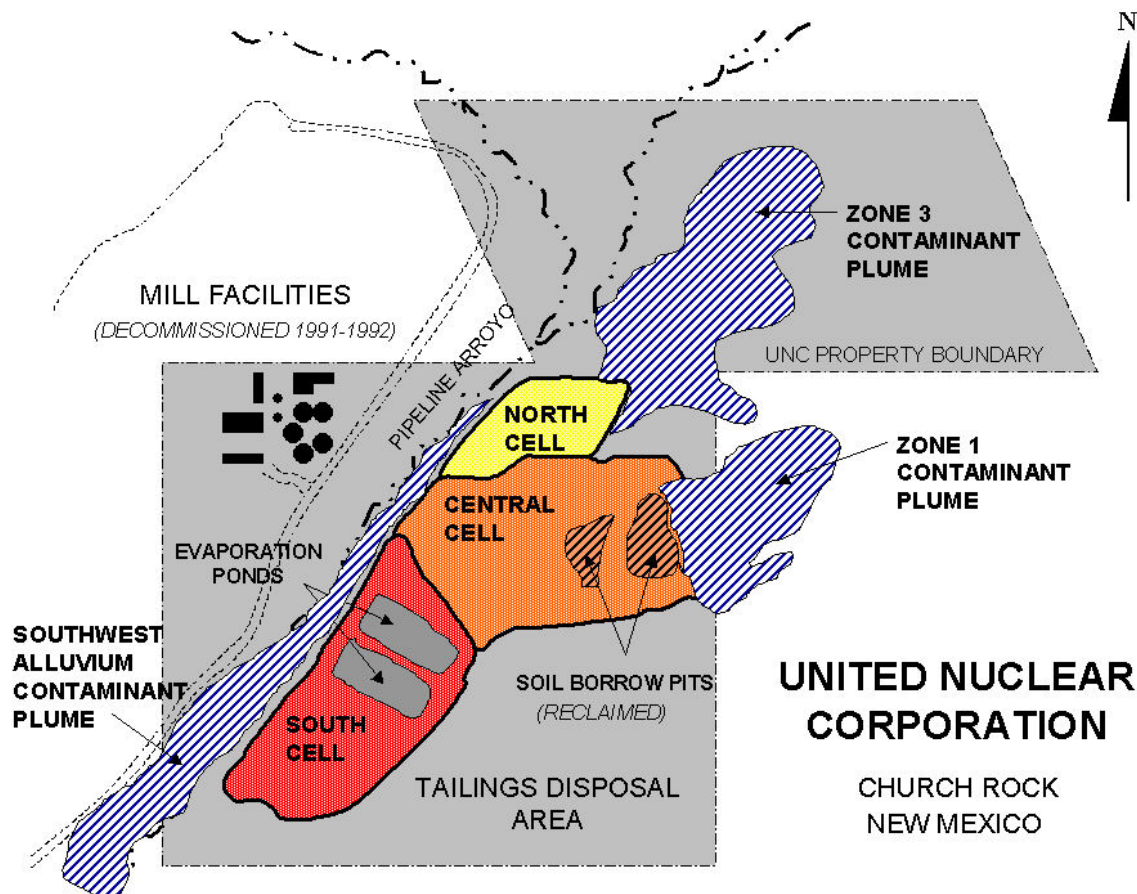
The surrounding lands include Indian Tribal Land, Indian Allotment Land and UNC-owned property. The land use near the Site is primarily grazing for sheep, cattle and horses. It is noted that the Ft. Defiance Housing Corporation, in conjunction with the U.S. Department of Housing and Urban Development and the Navajo Housing Authority, is planning to develop a 1000-unit housing complex, called the Springstead Estates Project, in the vicinity of Springstead (seven miles to the southwest of the Site).

Four water wells are within a 4-mile radius, the nearest being 1.7 miles northeast of the Site; however, nearby residents generally have used bottled water for drinking since the well water has a bad taste.

Hydrogeology: Three shallow water-bearing units beneath the Site were significantly recharged by mine water that was discharged into a local arroyo prior to and during Site milling operations. They are Zone 1 and Zone 3 of the Upper Gallup Sandstone Formations and the shallow alluvium (referred to as the Southwest Alluvium). These recharged units were then contaminated by tailings seepage from the Site. Underlying the Upper Gallup Sandstone Formation is the Mancos Shale. The Mancos Shale acts as an aquitard to prevent or retard the downward migration of contamination.

Principal pollutants: Acidic mill tailings, total dissolved solids, sulfate, thorium, radium, aluminum, ammonia, and iron

Site Map



Record of Decision

EPA signed the ROD on September 30, 1988.

The selected remedy included:

1. Containment and removal of contaminated ground water in the Southwest Alluvium and Zones 1 and 3 of the Upper Gallup Sandstone utilizing existing and additional wells.
2. Evaporation of ground water removed from aquifers using evaporation ponds supplemented with mist or spray systems to enhance the rate of evaporation.
3. Implementation of a monitoring program to detect any increases in the areal extent, or concentration of ground water contamination at, and outside of, the boundary of the tailings disposal area.
4. Implementation of a performance monitoring and evaluation program to determine water levels and contaminant reductions in each aquifer, and the extent and duration of pumping actually required outside the tailings disposal area.

Contacts

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Prime Contractor:	None	